Work Order ID 68976

Tuesday, April 26, 2011 2:32:12 PM

Ship May 10th or sooner

Item ID: D204-635-041 **Accept** **Setup Start**

Revision ID:

Item Name: Replacement Skidtube **Stop**

Start Date: 4/27/2011 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 5/10/2011 **Req'd Qty:** 1.00 **Customer:**

Reference:

Run Start

Approvals: **Process Plan:** MF **Date:** 11-04-26 **Tooling:** **Date:** **Stop**

QC: **Date:** **SPC (Y/N):** **Date:**

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
100		0.00							
DC		0.00							
Document Control	**Memo** Photocopy bluefile &type labels per PPP D204-635-041 CHG 004								

Draw Nbr	Revision Nbr
D2590	RevD DEO-D1

N/A

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

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NOTE: Date & initial all entries

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Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
110		0.00							
Skidtubes		0.00							
Skidtubes									

Memo

1- Inspect mat'l D2500-1-190 for damage

2-Cut D2500-1-190 per Dwg D2590 .Deburr ends

3-Drill pilot holes using drill jig DT 8149 & DT8711-1&-2 and open to finish size as per dwg

4-Deburr holes as per QSI002 section 4.2.3 and blow out all chips from inside of tube

5-Acid etch and Alodine tube per QSI 005 4.1

6-Bond web in place per QSI 015. Allow 12 Hrs. cure time before cutting

Pick:

Qty □Part Number□ Description □□Batch

A/R □□□ Sikaflex-291 □ 116940 □□□

Sikaflex expire date: 12/5/15

Start Time: 4:00

Fin Time: 4:15

BB 11/05/09

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120		0.00				1	0		BE 11/05/10
CNC Bend 1	**Memo**	0.00							
CNC Delta 100 Bender	Bend as per program D2590.C on CNC Bender								
130		0.00							DP 11/05/11
Skidtubes	**Memo**	0.00							
Skidtubes	1-Cut tubes as per Dwg. D2590 . 2-Deburr ends after cutting.								
140	QC6- Inspect dimensions to drawing	0.00							DP 11-5-11
QC	**Memo**	0.00							
Quality Control									

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150		0.00							
Skidtubes									
Skidtubes	**Memo**	0.00							
	1-Prepare tube for welding D2576-3 Step Remove alodine as required.								
	2-Weld step D2576 as per Dwg. D2590 and QSI004 A/R□□□ Aluminum Rod M116577 BE 11/05/11								
	3-Grind weld flush on step BE 11/05/11								
	4-Insert D4202-1 spacer, swage as per QSI002 and trim/ grind flush per QSI002 and as per dwg WELDER BE 11/05/11 A/R M116577								
	5-Drill holes for wearplates using DT 8218 & DT8937 Open holes to 19/64", adjust stopper not to hit web.Deburr BE 11/05/11								
	6-Drill pilot holes for aft cap using DT 8215 Open holes to #6 Drill bit. Deburr								
	7-Drill pilot holes for Tow ring using DT9425, open to .640"and Deburr ****verified dim. before drilling****								
160	QC10- Inspect visual per QSI004- ground welds	0.00							
QC									
Quality Control	**Memo**	0.00							

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W/O:		WORK ORDER CHANGES					
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Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
170 QC Quality Control	QC6- Inspect dimensions to drawing	0.00							
	Memo	0.00 8 11/05/11							
175 HandFinish Hand Finishing	Pressure Wash per QSI005 4.3	0.00							
	Memo Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch.	0.00							
180 Powdercoat Powder Coating	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum	0.00							
	Memo START TIME: 11:45 OVEN TEMPERATURE: 320 oF FINISH TIME: 12:15	0.00							

M116964

IX Ø M 11/05/11

IX Ø M 11/05/12

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run** **Start**

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____ **Stop**

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190	QC3- Inspect Part Finish	0.00				1	0		11/05/12
QC	**Memo**	0.00							
Quality Control									

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W/O:		WORK ORDER CHANGES					
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Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
200		0.00				1	0		MLu 05/12
HandFinish		0.00							
Hand Finishing	**Memo**								

1-Install inserts & wearplates & gaskets using a drop of Sikaflex on insert holes before installing wearplates
A/R ☐☐☐ Sikaflex-291 ☐ M1116945
Sikaflex expire date: 12/01

2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580

3-Inspect for foreign object per QSI 024

4-Install 2855 Aft Cap as per Dwg D2590 and seal Fwd Step & Aft Cap with Sikaflex. Clean excess adhesive
A/R ☐ ☐☐ Sikaflex-291 ☐ M1116945
Sikaflex expire date: 12/01

5-Wing Walk as per Dwg D2590 and QSI 005
4.4 Batch: M1117315

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Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210 QC Quality Control	QC5- Inspect part completeness to step on W/O	0.00				40			
	Memo	0.00							
215 Packaging Packaging	Identify as per dwg & Stock Location:_____	0.00							
	Memo PPP ~~68976~~ 68977	0.00							
220 QC Quality Control	QC21- Final Inspection - Work Order Release	0.00							
	Memo	0.00							

8 11/05/13

11/5/18 C

11/5/18 C

11-05-18 C

Dart Aerospace Ltd

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Picklist Print

Tuesday, April 26, 2011 2:32:08 PM

Work Order ID: 68976

Parent Item: D204-635-041

Parent Item Name: Replacement Skidtube

Start Date: 4/27/2011 **Required Date:** 5/10/2011

Start Qty: 1.00 **Required Qty:** 1.00

Comments: IPP Rev:F□02.08.28□FP was QC5 in Step 27; Added QC5 to Step 30□KJ
IPP Rev:G 07-07-09 Added SS Wearplates & Gaskets JLM IPP RevH:
add identifify and stock seq DD 10.01.28 verf:EC
IPP Rev:I 10.12.01 as per DEO DD
verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
ALS7-1032-130		Purchased	No			180	Each	207.0000	44	44			
Insert										JL 4/05/12			
				Location			**Loc Qty**		**Loc Code**				
				ST281			200						
					117331		200			YCM			
				ST282			7						
					116800		7						
AN3-5A		Purchased	No			180	Each	1,216.000	2	2			
Bolt										JL 4/05/12			
				Location			**Loc Qty**		**Loc Code**				
				ST350			1216						
					115371		416			X2			
					117423		800						
AN3C4A		Purchased	No			180	Each	2,306.000	44	44			
BOLT										JL 4/05/12			
				Location			**Loc Qty**		**Loc Code**				
				ST350			2306						
					116924		310						
					117094		996						
					117313		1000			X44			

Dart Aerospace Ltd

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Start Date: 4/27/2011 **Required Date:** 5/10/2011

Start Qty: 1.00 **Required Qty:** 1.00

AN960C10L	NAS1149C0332R	Purchased	No		180	Each	0.0000	44	44
washer									(x44) 11/05/12
AN960JD10L	NAS1149D0332J	Purchased	No		180	Each	0.0000	2	2
Washer									(x2) 11/05/12
D2594-1		Manufactured	No		180	Each	403.0000	10	10
Plug, 205 Skidtube									11/05/12

Location	Loc Qty	Loc Code	
FP-A	403		
42807	28		
66122	148		
66932	220		x10
67441	7		

D2594-3		Manufactured	No		180	Each	1,304.000	10	10
O-Ring, 205 Skidtube									11/05/12

Location	Loc Qty	Loc Code	
FP-A	1304		
65518	304		
66952	1000		x10

D2855		Manufactured	No		180	Each	70.0000	1	1
Cap									11/05/12

Location	Loc Qty	Loc Code	
FP007	70		
53791	33		x1
65519	2		
65569	35		

Dart Aerospace Ltd

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Parent Item Name: Replacement Skidtube

Start Date: 4/27/2011 **Required Date:** 5/10/2011

Start Qty: 1.00 **Required Qty:** 1.00

D3564-11	Manufactured	No		180	Each	2.0000	1	1
Wearshoe								4/05/12

Location	Loc Qty	Loc Code	
FP019	2	368350	X1
66154	2		

D3564-13	Manufactured	No		180	Each	38.0000	1	1
Wearshoe								4/05/12

Location	Loc Qty	Loc Code	
FP017	38		
66136	16		X1
66549	6		
66805	16		

D3564-7	Manufactured	No		180	Each	15.0000	1	1
Wearshoe								4/05/12

Location	Loc Qty	Loc Code	
FP019	15		
33803	4		X1
43229	11		

D3564-9	Manufactured	No		180	Each	3.0000	1	1
Wearshoe								4/05/12

Location	Loc Qty	Loc Code	
FP019	3		
67590	3		X1

Dart Aerospace Ltd

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Start Date: 4/27/2011 **Required Date:** 5/10/2011

Start Qty: 1.00 **Required Qty:** 1.00

D3566-1	Manufactured	No		180	Each	73.0000	2	2

Gasket

Location	Loc Qty	Loc Code
FP015	73	
68344	34	
68924	39	

D3566-13	Manufactured	No		180	Each	41.0000	1	1

Gasket

Location	Loc Qty	Loc Code
FP014	41	
~~66550~~	21	
68341	20	

D3566-7	Manufactured	No		180	Each	24.0000	1	1

Gasket

Location	Loc Qty	Loc Code
FP015	24	
37354	4	
55490	20	

~~D4202-1~~ D2579	Manufactured	No		150	Each	443.0000	17	17

Spacer

Location	Loc Qty	Loc Code
LG002	443	
66929	106	
67129	196	
67308	1	
67430	140	

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Work Order ID: 68976

Parent Item: D204-635-041

Parent Item Name: Replacement Skidtube

Start Date: 4/27/2011 **Required Date:** 5/10/2011

Start Qty: 1.00 **Required Qty:** 1.00

D2500-1-190	Manufactured	No		110	Each	67.0000	1	1

Ext'n - I' Beam Tube 4"

Location	Loc Qty	Loc Code
HALL	23	
58427	23	
LG	44	
66296	44	

D2597	Manufactured	No		110	Each	0.0000	1	1

204 Web

69325

D2576-3	Manufactured	No		150	Each	9.0000	1	1

Step (maching detail)

Location	Loc Qty	Loc Code
LG	9	
52215	9	

BB 11/05/09

BB 11/05/09

BE 11/05/11

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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NOTE: Date & initial all entries

DART

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO. D2590	REV. D SHEET 1 OF 2
DATE 07.04.05		TITLE 204 SKIDTUBE ASSEMBLY	SCALE NTS

A	96.09.16	NEW ISSUE
B	96.12.02	AS MANUFACTURED
C	98.08.28	REDRAWN, INCLUDED DEO 9094/9097
D	07.04.05	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124

RELEASED 07 06 28

DEO ATTACHED

QTY -041	Part Number	Description
X	D2590-041	SKIDTUBE ASSEMBLY
1	D2500-1-190	EXTRUSION
1	D2576-3	STEP
17	D2579	CROSS BOLT SPACER
10	D2594-1	PLUG
10	D2594-3	O-RING
1	D2597	204 WEB
1	D2855	AFT CAP
1	D3564-7	WEARSHOE
1	D3564-9	WEARSHOE
1	D3564-11	WEARSHOE
1	D3564-13	WEARSHOE
2	D3566-1	GASKET
1	D3566-7	GASKET
1	D3566-13	GASKET
44	ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
44	AN3C4A	BOLT
2	AN3-5A	BOLT
44	AN960C10L	WASHER
2	AN960JD10L	WASHER

GENERAL NOTES:

1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
2) ALL DIMENSIONS ARE IN INCHES
3) INSERT D2597 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
4) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
5) USE DART DRILL TEMPLATE TD2577-204 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION D-D (44 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND AN960C10L WASHERS WITH SIKAFLEX-241/-291.
6) WELDING TO BE DONE PER DART QSI 004.
7) FINISH:
 ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB
 POWDER COAT ASSEMBLY GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3
 BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4
8) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES).

#6897

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Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

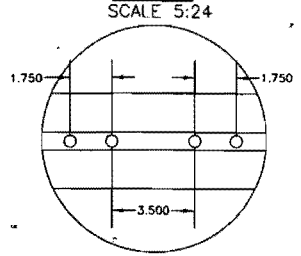
Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

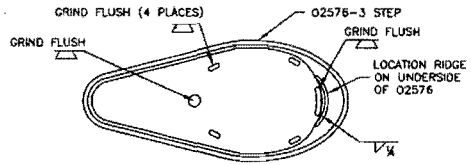
DETAIL A
SCALE 5:24



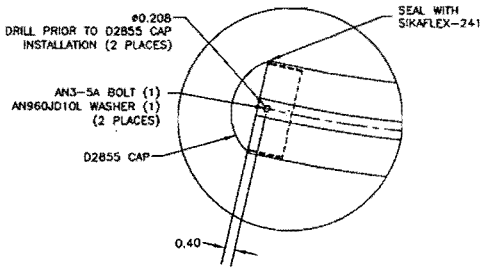
RELEASED
07.06.28

DEO ATTACHED

DETAIL B
SCALE 5:24

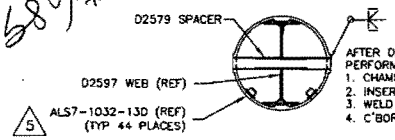


DETAIL C
SCALE 5:24



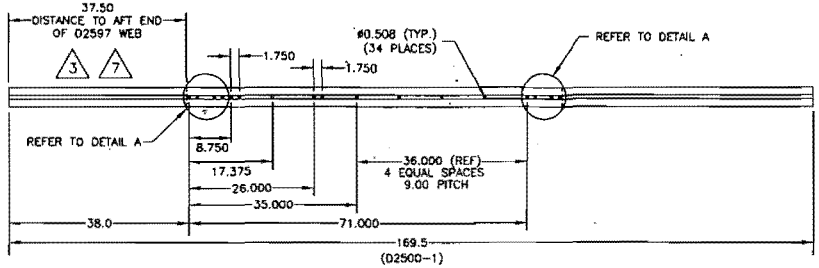
9L589A

SECTION D-D
SCALE 5:24

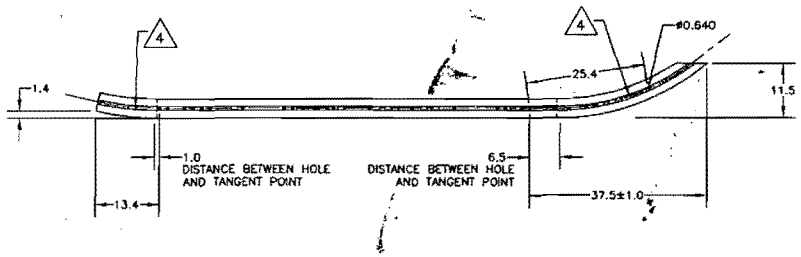


AFTER DRILLING AND BENDING ASSEMBLY PERFORM THE FOLLOWING FOR ø0.508 HOLES ONLY:
1. CHAMFER HOLE 0.050 x 45°
2. INSERT D2579 SPACER (17 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C'BORE D2579 SPACER TO ø0.437 x 1.00 DEEP

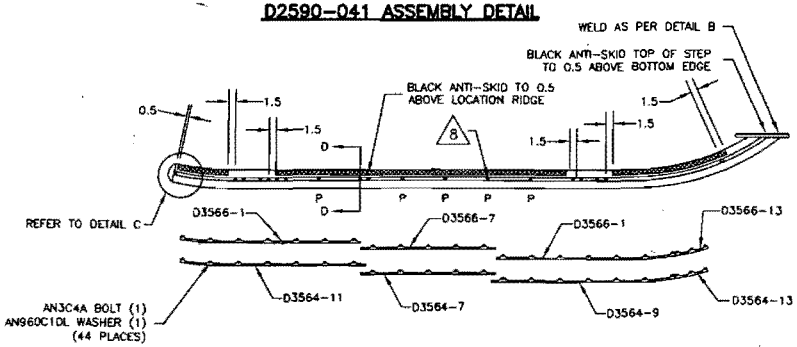
D2590-1 DRILLING DETAIL



D2590-1 BENDING AND CUTTING DETAIL



D2590-041 ASSEMBLY DETAIL



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DESIGN	DRAWN BY	DART AEROSPACE LTD. HAWKESBURY, ONTARIO, CANADA
CHECKED	APPROVED	DRAWING NO. D2590 REV. D
DATE 07.04.05		TITLE 204 SKIDTUBE ASSEMBLY SHEET 2 OF 2 SCALE 1:24

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

DRAWING NO.	TITLE	REV. D	DART AEROSPACE LTD	D.E.O. NO.	SHEET NO.	SCALE
D2590	204 SKIDTUBE ASSEMBLY		ENGINEERING ORDER	D2590-D-1	SHEET 1 OF 1	NTS

DRAWN	CHECKED	MFG. APPR.	APPROVED	DE APPR.
DATE 10.09.22	DATE 10.11.04	DATE 10.11.04	DATE 10/11/04	DATE 10.11.04

PURPOSE:
CHANGE ALL WELDED CROSSBOLT SPACERS TO SWAGED SPACERS

RELEASED
2010 -11- 17
MP

CHANGE:
PARTS LIST IS AMENDED AS FOLLOWS:

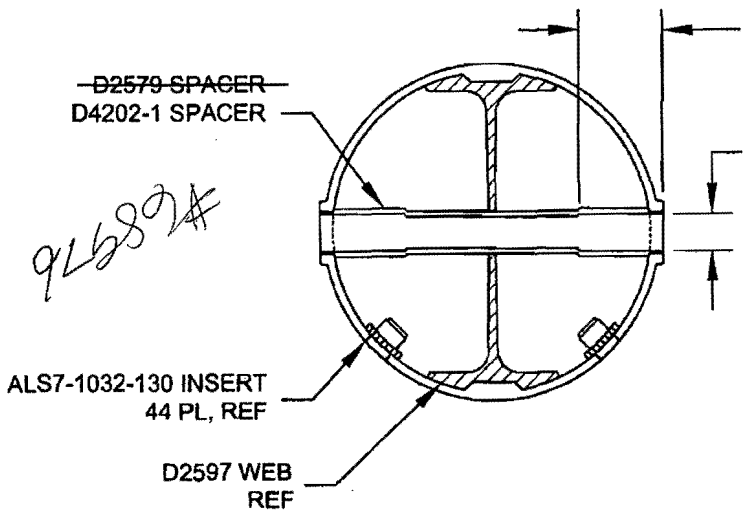
WAS

QTY -041	PART NUMBER	DESCRIPTION
17	D2579	CROSS BOLT SPACER

IS

17	D4202-1	SPACER

SECTION D-D IS AMENDED AS FOLLOWS:



AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:

~~1. CHAMFER HOLE 0.050 X 45°~~
~~2. INSERT D2579 SPACER (17 PLACES)~~
~~3. WELD INTO PLACE AND GRIND FLUSH~~
~~4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP~~

1. INSERT D4202-1 SPACER, 17 PL
2. SWAGE TO Ø0.437 X 1.00 DEEP PER QSI 002
3. TRIM / GRIND FLUSH PER QSI 002

SECTION D-D
NOT TO SCALE

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Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

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			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Linda Lacelle

From: dshepherd@dartaero.com
Sent: April 18, 2011 11:36 AM
To: Linda Lacelle; Mike Petsche
Cc: Bill Beckett; 'Chris Provencal'; 'Eric Charbonneau'
Subject: Re: Alum. Solution Anneal - swaging

Makes sense to me ... We don't want to get caught short ... Make sure that if we do this, they are identified with the old CHG number.

David

Sent from my BlackBerry device on the Rogers Wireless Network

From: "Linda Lacelle" <llacelle@dartaero.com>
Date: Mon, 18 Apr 2011 11:21:10 -0400
To: 'Mike Petsche'<mpetsche@dartaero.com>; <dshepherd@dartaero.com>
Cc: 'Bill Beckett'<bbeckett@dartaero.com>; 'Chris Provencal'<cprovencal@dartaero.com>; 'Eric Charbonneau'<echarbonneau@dartaero.com>
Subject: RE: Alum. Solution Anneal - swaging

I am ready to weld some up, I don't want to get into trouble with L/T's on these, any objections??
LL

From: Mike Petsche [mailto:mpetsche@dartaero.com]
Sent: April 18, 2011 10:42 AM
To: 'Linda Lacelle'; dshepherd@dartaero.com
Cc: 'Bill Beckett'; 'Chris Provencal'; 'Eric Charbonneau'
Subject: RE: Alum. Solution Anneal - swaging

CC7 CHG D2579

Well I'm not sure what to say.

It is my understanding that the swaging will still make sense even with the extra hoops we need to jump through.

If there is still uncertainty on the delivery of the material, we CAN still weld them if we need to.

And while this might be less than "world class", couldn't we take some of our tubing that we have in stock and zap it with the welder to knock down the temper a little? Ground clamp on one end, torch on the other.....BZZZZZZT.

(I'm only sort of joking....because I bet it would work)

From: Linda Lacelle [mailto:llacelle@dartaero.com]
Sent: April 18, 2011 9:44 AM
To: dshepherd@dartaero.com; 'Mike Petsche'
Cc: Bill Beckett; Chris Provencal; Eric Charbonneau
Subject: RE: Alum. Solution Anneal - swaging
Importance: High

NO. 251

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name: Barclay Elliott
Job number: ~~68708~~ 68708
Part number: D205-634-041
Description: D205
Welding Process: Tig[] Mig[]
Base materiel: aluminum
Current: AC[X] DC[]

TEST REQUIREMENTS AND RESULTS

Visual:	pass[X]	fail[]
Penetration:	pass[X]	fail[]

UNACCEPTABLE

Cracks:	pass[X]	fail[]
Undercut:	pass[X]	fail[]
Pin holes:	pass[X]	fail[]
Overlap (cold lap)	pass[X]	fail[]
Porosity (surface):	pass[X]	fail[]
Coloration:	pass[X]	fail[]

Qualifier Katy Ewers **Date of Test Coupon** 11-05-05

Welder Barclay Elliott **Date of Test Coupon** 11-05-05

The above named individual is qualified in accordance with AWS D17.1.2001 to weld